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America's Naval Preparedness

BY DAVID H. POPPER

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This is the first of two reports on the United States Navy. The second will deal with American naval policies, problems and objectives. All factual material contained in this report has been drawn from published sources, as cited in the text.

ALARMED by Germany's acquisition of military bases on the Atlantic and increased collaboration between the Axis and Japan, the United States is now engaged in vastly augmenting its naval defenses and placing the fleet on a footing of preparedness for any eventuality. The progress of its program is limited not by financial obstacles, but by the lapse of time inevitable before construction can be completed and personnel trained. Since May 1940 Congress and the nation have been more than willing to grant the Navy any sums which it could reasonably request. In regular appropriations and supplemental laws enacted because of the emergency, the naval establishment has received, up to March 13, 1941, a total of $3,194,059,027 for direct expenditure during the fiscal year ending June 30, 1941, together with authority to make contracts for a future outlay of $943,050,612.[1] Large as the approved expenditures are, they have been surpassed by the regular Navy Department Appropriation Bill for the fiscal year 1942, carrying $3,415,457,250 as passed by the House of Representatives on March 14, 1941, with $31,127,894 in contractual authority.[2]

The scope of the Navy's plans for expansion can scarcely be depicted without the use of superlatives. Almost half of the 1942 naval appropriations—$1,515,000,000—is allocated for new shipbuilding alone. Assuming that no further changes occur in the number and cost of ships to be acquired, an additional $5,553,976,322 will be needed in the ensuing years to complete some 700 vessels of all sizes now on order.[3] If the price of new airplanes and shore facilities, the training of personnel and the procurement of miscellaneous equipment are included, the total outlay for the projected naval force will far exceed $10,000,000,000.[4]

The acceleration in naval construction epitomized in these figures is due not only to the adoption of a two-ocean naval policy in 1940, but also to a sudden awareness in recent years that the country had neglected to carry out a systematic building program under the naval treaty limitations after 1922. While other naval powers maintained a relatively uniform flow of new construction, the United States—left with large numbers of some types of vessels because of World War programs—lagged far behind in laying down combat ships.[5] In March 1934 Congress had, to be sure, authorized eventual construction of more than 100 vessels for replacements and creation of an underage navy of the maximum size permitted by treaty standards; and in May 1938 it sanctioned a project to expand the fleet by about 20 per cent in underage ships.[6] It was originally planned, however, to implement the Congressional mandate gradually, over a ten-year period ending in 1948, and thus to establish the principle of a regular annual program of new shipbuilding.[7]

As hostilities spread in Europe and Asia, this objective was soon discarded in favor of emergency measures designed to enhance American strength

1. U.S., 77th Congress, 1st session, *House Report No. 247 on H.R. 3981* (Navy Department Appropriation Bill, 1942), March 13, 1941. Total includes funds in the Fourth Supplemental National Defense Appropriation Bill as passed by the House of Representatives February 27, 1941. For minor changes made in the Senate, cf. *Congressional Record*, March 10, 1941, pp. 2171 ff. It is expected that additional funds will be granted for disbursement before the end of the fiscal year.

2. *Ibid.*, March 14, 1941, pp. 2317-28.

3. U.S., 77th Congress, 1st session, *Hearings before the House Appropriations Subcommittee on the Navy Department Appropriation Bill for 1942* (Washington, 1941), pp. 721, 731.

4. Cf. Senator Walsh, *Congressional Record*, July 10, 1940, pp. 14230-31.

5. For detailed statistical tables comparing the annual construction of the principal naval powers, cf. U.S., 76th Congress, 3d session, *Hearings of the Senate Naval Affairs Committee on H.R. 8026, on Construction of Certain Naval Vessels* (Washington, 1940), pp. 114-19.

6. D. H. Popper, "American Defense Policies," *Foreign Policy Reports*, May 1, 1939, p. 36; Public No. 135, approved March 27, 1934; 52 Stat. 401, approved May 17, 1938.

7. *Senate Naval Affairs Committee Hearings on H.R. 8026*, cited, p. 38.

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with all possible rapidity. Between January and July 1940 Congress considered and approved three acts enormously increasing the size of the authorized naval establishment.

1. Eleven per cent naval expansion. Scaling down a larger Navy Department request because of uncertainty regarding the international situation and the effect of the war on naval tactics, Congress after lengthy discussion voted an increase in underage naval combatant tonnage from 1,557,480 to 1,724,480 tons. The act sanctioned the construction of 22 aircraft carriers, cruisers and submarines; authorized the President to acquire or construct 75,000 tons of auxiliary vessels; and raised the approved number of naval aircraft from not less than 3,000 to not more than 4,500.[8] Together with 157,000 tons of combatant ship construction voted in the expansion acts of 1934 and 1938 but not yet laid down, the 167,000 tons thus legalized by Congress was substantially geared to the estimated normal productive capacity of American shipyards in the two years 1940-42.[9]

2. Naval Aviation Expansion. The invasion of Norway and France at once dissipated the atmosphere of hesitation. Impressed by the striking power of aircraft as revealed in Europe, and the possibility of an Allied defeat, Congress promptly took additional steps to meet the Navy's desire for a much stronger naval air force. By an act of June 15, 1940 it increased the maximum authorized number of useful naval airplanes from not more than 4,500 to not more than 10,000; empowered the President to provide training facilities for 16,000 naval aviators and enlisted pilots; and approved the construction or improvement of a number of important naval air stations at a cost not to exceed $144,132,000.[10]

3. The Two-Ocean Navy. Finally, galvanized by the prospect of an Axis victory and a naval war which might be waged simultaneously in the Atlantic and Pacific, Congress in July 1940 approved a program for augmenting the underage combatant tonnage of the Navy by 1,325,000 tons, an increase of 70 per cent over the strength hitherto authorized.[11] The new allotment was distributed among all ship categories. The upper limit for airplanes was lifted to 15,000, with provision for future increases by executive action if needed. The additional planes are to be used both for service on new vessels and to swell the number of reserve machines.[12] Acquisition of another 100,000 tons of auxiliary vessels, as well as patrol, escort and miscellaneous small craft was also sanctioned.

8. Public No. 629, 76th Congress, approved June 14, 1940.

9. Cf. debate on H.R. 8026, *Congressional Record*, March 12, 1940, pp. 4226-51; June 4, 1940, p. 11313.

10. Public No. 635, 76th Congress. The sites concerned had been selected and recommended by the Hepburn Board, whose report now serves as a basic guide for their development. Work had already begun on some, under Public No. 43, approved April 25, 1939.

11. Public No. 757, 76th Congress, approved July 19, 1940.

12. U.S., 76th Congress, 3d session, *Senate Report No. 1946 on H.R. 10100*, July 8, 1940, p. 9.

INCREASES IN AUTHORIZED UNDERAGE U.S. NAVAL STRENGTH, 1934-1940[1]

	Authorized under Vinson-Trammell Act, 1934 (The "Treaty Navy")		Authorized increase (20%) under act of May 17, 1938		Total composition authorized, 1938-40		Authorized increase (11%) under act of June 14, 1940		Authorized increase (70%) under act of July 19, 1940		Total authorized underage tonnage	Approximate composition of fleet on completion of two-ocean navy (1946?)[5]		The Navy in service January 31, 1941	
	No. of ships	*Tonnage*	*No. of ships*	*Tonnage*	*No. of ships*	*Tonnage*	*No. of ships*[3]	*Tonnage*[3]	*No. of ships*[3]	*Tonnage*[3]	*Tonnage*	*No. of ships*	*Tonnage*[6]	*No. of ships*	*Tonnage*
Battleships	15	525,000	3	135,000	18	660,000	....	.....	7	385,000	1,045,000	32	.....	15	464,300
Aircraft carriers	6	135,000	2	40,000	8	175,000	3	79,500	7	200,000	454,500	18	.....	6	134,800
Cruisers, Heavy Cruisers, Light	18 19	180,000 163,770	....	.....	18 27	180,000 232,524	4 1	} 66,500	33[4]	420,000	899,024	91	.....	37	328,975
Destroyers	121	190,000	24	38,000	145	228,000	....	.....	155	250,000	478,000	365	.....	159	217,390
Submarines	47	68,298	10	13,658	57	81,956	14	21,000	43	70,000	172,956	185	.....	106	107,960
TOTAL	226	1,262,068	47	295,412	273	1,557,480	22	167,000	245	1,325,000	3,049,480	691	3,500,000[7]	323	1,253,425

[1] Compiled from U.S., 76th Congress, 3d Session, *Senate Report No. 1946 on H.R. 10100*, July 8, 1940; Public Laws 629 and 757, 76th Congress; *Congressional Record*, February 6, 1941, p. 761; statement of Admiral Stark, *Army and Navy Journal*, December 28, 1940, p. 438; *House Appropriations Subcommittee Hearings on Navy Department Appropriation Bill for 1942*, cited, pp. 709-10.

[2] Act authorizes increases in terms of tonnage only, and permits the Navy Department to vary the total authorized tonnage in these categories by 33,400 tons in the aggregate, without increasing total authorized tonnage. Number of ships as of February 18, 1941.

[3] Increase in terms of tonnage only, leaving to the Navy Department the right to determine size and number of vessels and to vary increases in all categories upward or downward by 30 per cent, provided total increase is not exceeded. Number of ships as of February 18, 1941.

[4] Including six heavy battle cruisers.

[5] Includes overage ships retained although "replaced."

[6] Estimates not available.

[7] Approximate.

The avowed purpose of the two-ocean navy act is to achieve complete freedom of action—that is, command of the sea—in either ocean, while at the same time retaining sufficient naval forces for effective defense in the other.[13] For a considerable period, however, the two-ocean navy as contemplated in law must remain a strategic dream rather than a reality. None of the ships authorized in 1940 were laid down that year because all ways were already in use for vessels begun under earlier programs.[14] It is hoped that the keels of the first two-ocean navy vessels may be laid in 1941, and the entire group completed in 1946 or 1947. Even with the extraordinary measures taken to expedite production, it is unlikely that all the heaviest vessels can be commissioned before that time, although most of the smaller ships should be in service by 1945.[15]

Meanwhile, with tension between this country and the totalitarian powers growing month by month, it becomes increasingly probable that the United States may have to participate in naval warfare with the ships it now possesses. Should a crisis be reached in 1941, for example, we would rely for our naval defense principally on existing major units at the outset, notwithstanding all our tremendous naval appropriations. It is therefore important to survey the composition and functions of the Navy as it stands, with the additions contemplated in the near future, and to note how closely it is approaching a full war footing.

THE UNITED STATES FLEET

In general, naval power may be said to consist of ships, aircraft, men and bases. The first three of these elements are included in the fleet, which is the heart of the Navy. Bureaus, shore establishments and auxiliaries should exist only to serve the needs of the combatant force. The fleet is composed of variegated types of ships and planes, each with its specialized function. The skillful coordination of the diverse elements in an organic unit, to provide mutual support in the attainment of a given objective, is the keystone of grand fleet strategy and tactics.[16]

For the conduct of operations the greatest concentration of American naval strength, stationed in the Pacific, is subdivided into three major forces: the Battle Force, Scouting Force, and Base Force. The Battle Force incorporates the heavy striking power of the Navy, including battleships, light cruisers, destroyers, aircraft carriers and other types. Scouting is carried out largely by heavy cruisers, submarines, and long-range patrol planes which may operate from insular or continental bases or, for additional strategic mobility, from aircraft tenders capable of supply and repair in any harbor. Finally, the Base Force is composed of auxiliary craft used as a fleet train, to maintain combatant ships in action.[17]

In the United States, at least, it is generally agreed that our fleet is "probably the strongest single sea force in the world."[18] It is "trained to the offensive" in order to defeat the enemy and assume control of the sea. Although it has not experienced a major test in battle since the Civil War, hundreds of vessels have participated in mock engagements during annual maneuvers (not to be conducted in 1941 because of the critical international situation), and minor training exercises are held throughout the year. Fighting efficiency is maintained at a high point, for the Navy is supposed to be prepared for action on short notice.

The concrete war plans of the service are, of course, defense secrets, but it is possible to discern the broad outlines of American naval strategy by reference to official and unofficial published data. When operating against an overseas opponent, the fleet may be expected, first, to seek to interrupt the enemy's commerce at the focal points of his trade routes. Second, it may be expected to employ advanced striking groups to acquire intermediate outposts on the sea route toward his territory, at once denying them to the enemy and clearing the path for stronger forces. Ultimately, the main body will strive, if practicable, to bring the opposing fleet to battle and annihilate it.[19] Should a coalition of hostile fleets possess clear superiority over our own, we might be forced to adopt a defensive strategy for a time and in certain areas; but it would be the aim of American naval authorities to secure a decisive engagement on relatively favorable terms at the earliest opportunity.

The distance of the United States from its potential foes and the lack of numerous, first-class outlying bases make it imperative that in such a campaign American naval vessels should be peculiarly fitted for the functions they are to perform. In a sense, each fighting ship represents a compromise

13. Representative Vinson, *Congressional Record,* June 22, 1940, p. 13499.

14. Representative Vinson, Chairman of House Naval Affairs Committee, *New York Herald Tribune,* January 5, 1941.

15. Cf. U.S., 76th Congress, 3d session, *Hearings of the House Appropriations Subcommittee on the Second Supplemental National Defense Appropriation Bill for 1941* (Washington, 1940), p. 4; speech of Admiral Land, coordinator of shipbuilding, *Congressional Record,* February 13, 1941, pp. 988-90.

16. For a detailed description of fleet organization and activity, cf. G. F. Eliot, *The Ramparts We Watch* (New York, Reynal & Hitchcock, 1938), Chapters X, XI.

17. Cf. Hanson W. Baldwin, *What the Citizen Should Know about the Navy* (New York, Norton, 1941), pp. 172 ff.

18. *Annual Report to the Secretary of the Navy by the Chief of Naval Operations for the Fiscal Year 1940* (mimeographed; Washington, 1940), p. 1.

19. Cf. Lieutenant R. H. Smith, "The Mosquito Stings," *U.S. Naval Institute Proceedings* (Annapolis), December 1940, p. 1696.

in which predetermined elements of speed, range, protection and striking power are incorporated in one hull. Except through technical improvements and greater size, any increase in one factor entails a corresponding reduction in others. As a rule, American officials have emphasized armor, armament and long range rather than speed in their ship designs.[20] Consequently, the fleet is believed to possess general ship-for-ship superiority in fighting strength, and to be unrivalled in its capacity for combat at extreme distances from its bases.[21] Because of its impressive fleet train, it can achieve considerable self-sufficiency with regard to repairs, and has broadened the range of its smaller craft by perfecting a technique for refuelling at sea.

DISPOSITION OF FORCES

Between 1922 and 1940 the fleet was generally held in strategic concentration; and during the last decade it remained in the Pacific almost continuously. Small-scale detachments to other parts of the world were designed to protect American citizens and interests and to facilitate training. Light vessels were assigned to the Asiatic Fleet, stationed in the Far East; to a small squadron (40-T) in Europe; and to the Special Service Squadron in the Caribbean; while the three oldest battleships and some accompanying craft were grouped in an Atlantic Squadron used for training purposes. This pattern of organization was soon changed as a result of the outbreak of the European war, which eventually necessitated replacement of naval vessels in transatlantic waters by Coast Guard cutters, and the use of additional craft for patrol of the Pan-American neutrality zone as far south as the extremities of the Caribbean.[22] Ships for patrol tasks were secured from the large reserves of about 170 World War type destroyers and some 65 old submarines, many of which had been maintained in reduced commission for just such an emergency.[23]

Following the adoption of the two-ocean naval policy, the Navy Department moved cautiously to strengthen its nucleus of ships on the east coast and unify it under a single command. On October 2, 1940, five days after conclusion of the Berlin-Rome-Tokyo alliance, it announced that a newly organized force of "more than 125 ships" was to be established in the Atlantic and designated the Patrol Force, United States Fleet.[24] All vessels and naval planes in this ocean were made subject to the orders of a single commander. Four months later, on February 1, 1941, the Patrol Force was raised to the status of a separate fleet, and the Navy resumed a three-fleet organization abandoned in 1922.[25] At the moment, therefore, the approximate disposition of our men of war is as follows:

1. *The Pacific Fleet,* based on the Hawaiian Islands since May 1940.[26] This group includes the preponderant striking power of the American Navy, with 12 of its most modern battleships to counter the 10 Japanese capital ships, as well as 4 aircraft carriers, the bulk of our light and heavy cruisers, many destroyers and submarines, and 4 wings of Navy patrol planes.[27]

2. *The Atlantic Fleet,* probably totaling some 125 vessels. Built about our 3 oldest battleships, the *New York, Arkansas* and *Texas,* and the semi-demilitarized training ship *Wyoming,* this force also embraces several new cruisers which would normally have been sent to the Pacific; 2 aircraft carriers; a number of destroyers and submarines; and patrol planes stationed at Coco Solo, Norfolk and other strategic locations. Like the Pacific Fleet, this organization is provided with its own train of auxiliary vessels. Pending the completion of new insular stations in the Atlantic, especially the projected fleet anchorage at Vieques on the eastern end of Puerto Rico, the Atlantic Fleet is presumably based on the three great continental establishments on the east coast, at Norfolk, New York and Boston, and on Caribbean outposts as far south as the Canal Zone.[28]

3. *The Asiatic Fleet,* whose composition and functions remain unchanged in the general reorganization. It apparently includes about 35 cruisers, destroyers and submarines, as well as a minor force of patrol planes.[29]

20. But the Navy's new capital ships will be extremely fast, without sacrifice of other qualities, because of improved propulsion machinery. For a re-statement of the traditional view, cf. Lieutenant F. G. Percival, "Future Naval War," *U.S. Naval Institute Proceedings,* December 1940, pp. 1699 ff.

21. For examples, cf. *loc. cit.,* p. 1712; Eliot, *The Ramparts We Watch,* cited, pp. 201 ff. A sharp contrast may be drawn with the Italian fleet, and certain French and German naval vessels, in whose construction the elements of speed and maneuverability over short distances were given primary emphasis.

22. The European squadron was withdrawn to avoid confusion with the "four-stacker" destroyers received by Britain from the United States. For disposition of the fleet as of June 10, 1940, when a Navy Department order restricted public information on fleet movements, cf. *The New York Times,* June 11, 1940.

23. U.S., 76th Congress, 3d session, *Hearings of the Senate Appropriations Subcommittee on the Navy Department Appropriation Bill for 1941* (Washington, 1940), pp. 56, 124 ff. Seventy-seven old destroyers and light minelayers were recommissioned for neutrality patrol duty in the fiscal year 1940. *Annual Report of the Chief of Naval Operations, 1940,* cited, p. 10.

24. *New York Herald Tribune,* October 3, 1940.

25. *Ibid.,* February 2, 1941.

26. For the announcement that the fleet would be stationed indefinitely in Hawaiian waters, cf. *ibid.,* May 8, 1940.

27. Each wing of patrol planes consists of 3 to 5 squadrons of 12 planes.

28. The development of a major advanced fleet operating base at Vieques, extending the Navy's radius of action far to the southeast, is of major significance. An ultimate expenditure of $100,000,000 is planned to prepare the position, of which $35,000,000 is being made available in supplemental appropriations voted in the spring of 1941. U.S., 77th Congress, 1st session, *Hearings of the House Appropriations Subcommittee on the Fourth Supplemental National Defense Appropriation Bill for 1941* (Washington, 1941), pp. 259-62.

29. Data on composition of the three fleets have been drawn from *Army and Navy Journal,* October 5, 1940, p. 113; February 1, 1941, p. 574; Hanson W. Baldwin, in *The New York Times,* February 9, 1941. Exact figures are now restricted information.

Thus the Navy has partially re-grouped its vessels to meet the possibility of a simultaneous two-front maritime threat which might conceivably be directed against the Western Hemisphere. The new Atlantic Fleet, destined for great expansion as more vessels are completed, is a sufficiently strong container force to deal with raiders and probably to delay the progress of a major squadron until reinforcements can be dispatched from the Pacific. Yet naval quarters are still concerned to uphold the fundamental principle of the essential unity of all American naval strength for war purposes.[30] Despite the three-fleet organization, the Commander-in-Chief of the Pacific Fleet retains the post of Commander-in-Chief of the United States Fleet. He prescribes standards and methods of training for all seagoing naval vessels and is responsible for joint operations when two or more fleets work in conjunction.[31]

NAVAL VESSELS: TYPES AND CHARACTERISTICS

To evaluate the probable effectiveness of the fleet in action, it is important to note the principal characteristics of each of the combatant types—not only for those craft now in service but also for those under construction, in so far as that can be done with the limited information at hand. A few salient points have been included in the following summary.

Battleships. Capital ships constitute the backbone of the fleet. Within the limits set by their size—long restricted to 35,000 tons under the abrogated naval treaties—they incorporate the utmost in offensive and defensive power. In battle they would presumably maneuver behind a protecting screen of smaller craft so as to concentrate all the salvos of their tremendous rifles on the enemy's battleships. The 16-inch guns now in use will fire a 2,100-pound shell over 20 miles, with amazing accuracy at closer ranges. The armor on turrets, sides and decks will resist all but the heaviest blows of shells and bombs, while "blisters" and interior compartmentation of the hull minimize the effects of torpedoes, mines and the underwater explosions of "near misses" from the air.

Steaming at long-range cruising speed of about 15 knots and combat speeds of about 21, the American battle line could not run from an enemy. It is not expected to do so. Instead, its armor (up to 16 inches on the belt at the waterline) is heavier, and its 14- and 16-inch guns are more numerous, than those of any other fleet.[32] Until 1941 the United States had in service 15 capital ships of 26,000 to 33,400 tons, completed between 1912 and 1923. Ten had been extensively modernized; 12 could be employed as a homogenous fighting unit. The three oldest capital ships of 26,000-27,000 tons form a second line in the Atlantic. Although they are definitely obsolete, their value to the fleet will be enhanced by increasing the elevation of their guns, to lengthen their range from 8 to 14 miles.[33]

Like the other principal naval powers, the United States has embarked on an extensive capital ship construction program since the naval treaties lapsed at the end of 1936. Two new 35,000-ton vessels, the *North Carolina* and the *Washington,* each armed with 9 16-inch guns in triple turrets, will be commissioned in April and May 1941.[34] Four other vessels of the same class are scheduled for completion in 1942. Keels have already been laid, moreover, for four 45,000-ton ships of the *Iowa* class, which will displace close to 50,000 tons at full load. Under the two-ocean navy act, 7 more craft have been ordered about which little is known except that they will probably be somewhat larger—of 50,000 to 60,000 tons.[35]

None of the new vessels is intended for use in the existing battle line. The *Washington* class has a designed speed of 27 knots, which may well be exceeded in trials, while in the *Iowas,* longer but not much broader and with the same armament, the additional tonnage has apparently been employed to increase protection, speed and range. According to unofficial estimates, these ships will have an unprecedented cruising radius (for the type) of 9,000 miles and a speed probably surpassing 30 knots.[36] The design for the 7 latest vessels may embody an increase in beam improving their stability as heavy-gun platforms. American capital ships have hitherto been constructed to pass through the 110-foot locks of the Panama Canal, but the new ships can hardly be completed before the projected third set of locks, which will be 140 feet wide.[37] When all 17 ships are placed in service, they will no doubt be grouped in first-line formations, perhaps with the 11 largest units as a new battle line. In the interim, however, the *Washingtons* will probably form the nucleus of a fast and destructive striking force, including aircraft carriers, fitted either to accomplish independent missions or to attack an opposing battle line in flank during a major engagement.[38-40]

30. *Annual Report of the Chief of Naval Operations,* cited, p. 2.

31. *Army and Navy Journal,* January 11, 1941, p. 481.

32. Cf. Eliot, *The Ramparts We Watch,* cited, pp. 207, 208.

33. Public No. 629, 76th Congress; *Senate Naval Affairs Committee Hearings on H.R. 8026,* cited, pp. 32-35; H.R. 3981, 77th Congress.

34. *The New York Times,* February 20, 1941.

35. Admiral Woodward, *New York Herald Tribune,* October 26, 1940; Admiral Stark, U.S., 76th Congress, *Hearings Before the House Naval Affairs Committee on H.R. 7665 and H.R. 8026, to Establish the Composition of the U.S. Navy* (Washington, 1940), p. 1731. The 385,000-ton authorization for capital ships contained in the 70 per cent naval expansion act would permit construction of 7 55,000-ton craft.

36. *New York Herald Tribune,* June 27, 1940; *The New York Times,* June 28, December 27, 1940; Percival, "Future Naval War," cited, p. 1708.

37. The aircraft carriers *Lexington* and *Saratoga,* as well as the new *Iowas,* are 108 feet abeam. Work on the new locks, which will be extensively protected against destruction by an enemy, began on July 1, 1940. Construction time is estimated at six years.

38-40. Cf. Percival, "Future Naval War," cited; Baldwin, *What the Citizen Should Know about the Navy* cited, p. 188.

Cruisers. Cruisers, second only to capital ships in striking power, play an important rôle in modern naval war. Under the naval treaty system, which imposed an upper limit of 10,000 tons and 8-inch guns on ships of this type, two general classes were developed for American needs. The 10,000-ton heavy cruisers of the Navy serve as long-range, high-speed scouting craft, with long cruising radius to span the oceans for information on the disposition of enemy forces, the destruction of enemy commerce, and the protection of our own. Because of weight restrictions, they possess rather light defensive armor and rely on their speed of approximately 33 knots and their maneuverability to escape superior hostile forces. The light cruisers, of 7,000 to 10,000 tons, with a 6-inch gun battery and heavy torpedoes, can carry out the same functions but are also employed with the fleet, where they utilize their rapid-fire weapons to screen capital ships and aircraft carriers against the attacks of swift light surface vessels, or even make such attacks themselves. The Navy as it exists today includes 18 heavy cruisers—a greater number than in any other fleet—and 19 of the lighter craft.

Even before the limitation treaties expired, the German "pocket battleship" of 10,000 tons—armed with 11-inch guns and able, by virtue of its 26-knot speed, to outrun any capital ship it could not meet on equal terms[41]—vividly illustrated the advantages to be obtained by construction in the intermediate zone separating the cruiser from the battleship category. Consequently, France, Germany and Italy engaged in a full-fledged building race for smaller battleships up to 35,000 tons, each class designed to gain superiority over a preceding type projected in this field.[42] Once treaty restrictions were removed, Japan pursued a similar course. Despite that country's attempt to conceal its naval programs, well-substantiated reports indicate that it is constructing 4 pocket battleships of 12,000 *to 15,000 tons, besides its new battleship program.*[43]

With a total of 54 cruisers under construction, the United States should eventually be fully prepared to meet the competition of other countries in this category of vessels. The new ships may be classified in four groups: (1) 32 additional 10,000-ton cruisers, many of them—possibly all—armed with 6-inch guns; (2) at least 4, and perhaps 8, light cruisers of 6,000 tons, which are probably designed to achieve supremacy in the gap between destroyers and cruisers, as the pocket battleships did between cruisers and capital ships; (3) 8 "heavy cruisers," which may have a displacement of 13,000 to 15,000 tons and carry an 8-inch battery together with more armor protection than has been given to the treaty ships; (4) 6 battle cruisers with an average cost in excess of $70,000,000 apiece.[44] The latter should be large, swift ships of over 20,000 tons and might logically mount 12-inch or even 14-inch guns. If so, they might deal easily with German and Japanese pocket battleships, and meet the four 26,000-ton French and German capital ships.[45] They would also be better suited than our heavier craft for operations in narrow waters or close offshore work, and might be used to strengthen the Atlantic Fleet or as the nucleus of a fast, independent striking wing.[46] For the American Navy they would represent an entirely new type.

Destroyers. A similar tendency toward greater size may also be noted in the case of destroyers—the small, dashing, many-purpose vessels of the fleet. Originally designed to counteract speedy torpedo boats, this class is now the pre-eminent anti-submarine ship by virtue of its high speed (up to 40 knots), its special detector apparatus, and its depth charges. It plays an important part in fleet actions as well as in convoy protection. Destroyers may launch swift torpedo attacks against the enemy line; combat enemy destroyers and submarines in screening operations for the protection of large ships; or employ their dual-purpose 5-inch guns against hostile aircraft. To save weight, the ships are almost completely lacking in armor and hence highly vulnerable. They achieve their effect through numbers, speed and maneuverability. Their short cruising range, seldom over 6,000 miles at slow speed, is an important factor limiting the mobility of battle fleets, to which they are indispensable. In the American Navy, this difficulty is partially overcome by refuelling at sea, and by the use of destroyer tenders as mobile maintenance stations for the older units.[47]

At present the United States has a total of 160 destroyers in service. The newer craft, of 1,500 to 1,630 tons with a number of 1,850-ton destroyer leaders, are liberally equipped with torpedo tubes and 5-inch weapons; the 74 ships of the 1,200-ton World War class have only 4-inch guns and tubes. While the older destroyers are too light and too weak in modern equipment to serve with full value in fleet actions, they are excellent ships for patrol and convoy purposes.[48] The units ordered in 1940 will be larger, advanced models with many of the characteristics of light cruisers. Contracts have been awarded for 121 of 2,100 tons; 68 of 1,700 tons; and 4 less expensive, smaller ships.[49] Under present plans, the two-ocean navy should eventually possess the sizeable total of 365 destroyers.[50]

41. Great Britain, Admiralty, *Fleets: The British Commonwealth of Nations and Foreign Countries* (London, H.M. Stationery Office, 1938), p. 19.

42. Cf. D. H. Popper, "The End of Naval Disarmament," *Foreign Policy Reports,* October 23, 1935, p. 204.

43. Cf. data from *Jane's Fighting Ships, 1941,* described in *The New York Times,* March 4, 1941.

44. Data gathered from the Navy's official list of vessels under construction, December 1, 1940; *House Subcommittee Hearings on the Navy Department Bill for 1942,* cited, p. 710 (hull and machinery costs only); *New York Herald Tribune,* March 15, 1941; *Congressional Record,* January 16, 1941, p. A129.

45. *Dunkerque, Strasbourg, Scharnhorst, Gneisenau.*

46. Cf. statement of Representative Maas, *The New York Times,* June 16, 1940.

47. Admiral Stark, *House Naval Affairs Committee Hearings on H.R. 7665 and H.R. 8026,* cited, p. 1842; Hanson W. Baldwin, *The New York Times,* August 10, 1940.

48. Admiral Robinson, *House Appropriations Subcommittee Hearings on the Fourth Supplemental National Defense Appropriation Bill,* cited, p. 219.

49. *Congressional Record,* January 16, 1941, p. A129.

50. Above figures include 40 destroyers ordered by the Navy Department in December 1940, apparently in recognition of the critical need for them in the type of naval warfare now being waged in Europe. *The New York Times,* December 18, 1940.

Submarines. Like the destroyer, the submarine may be put to many uses in time of war. By virtue of its power of concealment, it can operate in waters controlled by the enemy. It makes an excellent raider, although here its relatively low surface speed tends to limit its effectiveness, particularly against more speedy commercial and military craft, to interception at focal points on communication routes. The submarine may be used as a scout, a minelayer (if specially equipped) for offense or defense, a coastal patrol vessel to protect our harbors, and a surprise vessel in fleet engagements. To fulfill these varied functions, the United States now has in service 105 submersibles, 68 of which are overage ships completed during and after the World War. In general, the new craft are of either 800 or about 1,500 tons.[51] The latter, together with some still larger ships built in earlier years on a more or less experimental basis, are rather lightly armed but are said to have cruising radii of 12,000 to 15,000 miles—great enough to permit operations all the way across the Pacific, or against possible enemy action in the South Atlantic.[52] The smaller submarines and the overage units are useful for defensive work in offshore and Caribbean waters. Under the 1940 operating force plan, 43 submarines were stationed with the United States Fleet.[53] In December 1940, 80 were in various stages of construction.

Aircraft carriers. Paradoxically, the predominance of land-based aircraft in adjacent waters increases fleet requirements for this type of ship, by tending to force naval activities to take place in a distant high-seas zone outside easy flying range from the shore. The use of carrier-based aircraft in such zones has had a marked influence on naval tactics. Fighters, dive bombers, torpedo bombers and observation planes are now expected to take part in a full-dress fleet engagement, of which the first stage is likely to be a struggle for superiority in the air, accompanied or followed by the bombing of enemy ships. Carriers must therefore be constructed with long range of action and with sufficient speed to turn into the wind to permit use of their flight decks and then return to their stations with the fleet. Since they are extremely vulnerable, particularly if their decks are injured by bombs or shells, they are always protected by combatant vessels especially assigned for that purpose. As has been mentioned above, they may also be employed as part of an independent striking detachment.[54]

In American naval circles it is generally believed that this country's naval aviation is without peer. At the moment, six carriers are in commission: *Lexington* and *Saratoga,* fast but aging vessels of 33,000 tons, which have proved too large for fully satisfactory operation; *Ranger* and *Wasp,* of 14,700 tons each, too small, too slow (28 or 29 knots), and too weakly armed to be risked except in close conjunction with a fleet; and *Yorktown* and *Enterprise,* displacing almost 20,000 tons and with a speed of more than 30 knots.[55] While the actual assignment of planes to each carrier varies somewhat with the types employed and with other factors, the average number in peacetime is about 81 for each carrier, giving a total of 486 for the entire carrier force as now constituted.[56]

As a result of its experiences with these vessels, the Navy Department appears to have decided on construction of fairly large carriers in the future. The three authorized in the 11 per cent naval increase of June 1940 will displace 26,000 tons apiece; and if the entire 200,000 tons legalized in the two-ocean act is exhausted by the 8 ordered after its passage, they must obviously be only slightly smaller. None of these craft has yet been laid down.

NAVAL AVIATION

The field of carrier operations is by no means the only aspect of aviation in which the Navy has pioneered. The service has actively developed three types of aircraft, each in its own way helping to obtain the inestimable advantage of air superiority.[57] In *land planes* it has perfected vertical dive-bombing against ships and other objectives, and has developed an experimental model of an extremely fast, seagoing pursuit plane, powered with a 2,000 horsepower air-cooled motor—a naval type believed to be unmatched anywhere.[58] While these machines are intended for tactical use aboard carriers, they are often operated from shore bases for training purposes, for reasons of convenience and economy. *Pontoon planes* are catapulted from the decks of battleships and cruisers for scouting and observation of artillery fire; capital ships carry 3 apiece, cruisers 2 to 6.[59] Such planes alight in the water alongside their ships and are hoisted aboard.

Last, and perhaps most unusual, are the Navy's long-range *flying boats,* with ship-like hulls, which have made excellent records for dependability in lengthy

51. *Annual Report to the Secretary of the Navy by the Chief of the Bureau of Ships, 1940,* pp. 8, 9.

52. Cf. Fletcher Pratt, *Sea Power and Today's War* (New York, Harrison-Hilton, 1939), pp. 201-02. This book is particularly valuable to the layman for its illustration of the way in which ships are laid down in all fleets to serve specific strategic and tactical purposes.

53. U.S., 76th Congress, 3d session, *Hearings of the Senate Appropriations Subcommittee on the Navy Department Appropriation Bill for 1941* (Washington, 1940), p. 126.

54. Thus, a dispatch from Jamaica reports that an aircraft carrier, together with 3 heavy cruisers and 9 destroyers, put in at the new United States base site during fleet maneuvers.

55. Pratt, *Sea Power and Today's War,* cited, p. 195. A similar carrier, *Hornet,* will be completed in the fiscal year 1942.

56. *Senate Appropriations Subcommittee Hearings on the Navy Department Appropriation Bill for 1941,* p. 96. A 50 per cent reserve is maintained at shore bases; when the land planes of a carrier crash, they are out of service forever. *Ibid.,* p. 97. It is believed that at least 100 planes would be accommodated on each of the four largest carriers in time of war.

57. Congressman Vinson, *Congressional Record,* May 28, 1940, p. 10684.

58. Naval land planes are not interchangeable with military types. They must be specially built for operations from confined carrier decks and must bear the stress of the arresting gear which brings them to a halt as they land.

59. For complements, cf. *Senate Appropriations Subcommittee Hearings on Navy Department Appropriation Bill for 1941,* cited, p. 97; *House Naval Affairs Committee Hearings on H.R. 7665 and H.R. 8026,* cited, p. 1823.

overwater flights. With them it is possible to patrol vast ocean areas by utilizing the insular bases recently constructed on many minor Pacific islands, as well as the Navy's aircraft tenders.[60] Similar planes have also been operating in Caribbean and Atlantic waters since the institution of the neutrality patrol. Although designed primarily for scouting, they can carry heavy bomb-loads for long distances and deliver sharp offensive blows. Like many naval vessels, they have been built for range at the expense of speed, and only the latest models have sufficient defensive armament to give them adequate protection in the air.[61] Almost 300 long-range patrol bombers are now in service; they can fly well over 3,000 miles non-stop, or 1,000 miles with two tons of explosive and back to base unloaded.[62] Newer, larger and more powerful types on which delivery commenced in the autumn of 1940 are believed to have maximum ranges up to 5,000 miles without bomb-load, and to carry four tons of explosives for 1,090 miles.[63] At least 590 patrol bombers are now on order from two manufacturers.[64]

If the quality of naval planes is high, the quantity still leaves much to be desired. Prior to 1938 a total of 2,050 planes of all types was considered adequate. When an authorized limit of not less than 3,000 planes was set in that year, the Navy undertook to increase the number of machines by only 200 annually because of lack of suitable base facilities for their maintenance.[65] At present the immediate goal is 10,000 planes, about one-fourth of which would be training craft, with an ultimate objective of 15,000, including many machines in reserve. The Navy's current two-year procurement program for 1940-42 envisages the purchase of 7,129 planes.[66] While contracts have been awarded for all but about 1,000, deliveries have been delayed because of the tremendous demands on the rapidly expanding aircraft industry.

Planes and Pilots. The total number of naval planes on hand, of all types, increased only from 2,145 to 2,590, 660 of them trainers, between January 1, 1940 and the beginning of 1941. If production schedules can be met—which is problematical—a net gain of 3,700 machines is expected during the year 1941, bringing the total number to about 6,300 by January 1, 1942. Three-fifths of current deliveries, however, are composed of training planes, necessary to instruct the pilots of the future but constituting no immediate support for the fighting forces.[67] Because the Navy should always be on a ready-to-fight basis, it has been agreed that the aircraft needed to maintain the present fleet, known as replacement aircraft, would receive priority over any other planes on American order. These total 1,221 for 1941. But the procurement of planes for expansion and the contemplated 100 per cent reserve, engines for spares, and sufficient flying personnel will cause considerable difficulty for months and years to come.[68]

At the moment, in fact, highest priority is being given to the pilot-training program. During the year 1940 the number of naval pilots was increased from 2,924 to 3,639, partly by volunteer aviation cadets and partly by calling up reserve personnel. By the end of 1941 the total should be raised still further, to 5,993. Yet this figure is no more than a start toward the objective of about 17,000 pilots for the 15,000 plane program. The most intensive efforts have been made to build or enlarge naval air stations in Pensacola and Jacksonville, Florida, and Corpus Christi, Texas, where weather conditions rarely interfere with training activities.[69] Provided these posts can be fully staffed with 2,100 flight instructors (another bottleneck) and brought to capacity operation in the summer of 1941, the three schools will together absorb about 800 entrants each month and graduate about 70 per cent of them after a course which may eventually be compressed to as short a period as seven months. The southern stations are to be manned with candidates chosen by elimination at the 16 naval reserve aviation bases (and four others projected) scattered over the country and originally set up to recruit and train reserves. Despite the Navy's efforts, there is a strong probability that it will soon prove impossible to fill the quotas with volunteers unless the stringent educational qualifications are relaxed, more enlisted men are trained as pilots, and age limits are broadened.[70]

PREPAREDNESS FOR WAR

In the main, the Navy expects to fight a war with the major combatant vessels on hand at the outset of hostilities. The fleet in being is therefore trained

60. On the bases, cf. A. R. Elliott, "U.S. Strategic Bases in the Atlantic," *Foreign Policy Reports*, January 15, 1941; *idem*, "U.S. Defense Outposts in the Pacific," *ibid.*, March 15, 1941. For explanation of latest authorizations for such bases, cf. U.S., 77th Congress, *House Report No. 85 on H.R. 3325*, February 17, 1941, and *House Report No. 115 on H.R. 3155*, February 18, 1941.

61. Lieutenant-Commander A. B. Vosseller, "The Patrol Plane and the Future," *U.S. Naval Institute Proceedings*, November 1940, pp. 1577-85.

62. U.P. dispatch, *New York Herald Tribune*, November 24, 1940; *House Naval Affairs Committee Hearings on H.R. 7665 and H.R. 8026*, cited, pp. 1734-35.

63. *Ibid.*; *The New York Times*, September 22, 1940.

64. U.S., 77th Congress, 1st session, *Hearings of the House Naval Affairs Committee, Investigation into Status of Naval Defense Program* (No. 17, Washington, 1941), pp. 273-80.

65. U.S., 76th Congress, 1st session, *Hearings Before the House Naval Affairs Committee on H.R. 2880, on Construction of Certain Public Works* (Washington, 1939), p. 146.

66. Admiral Towers, *House Subcommittee Hearings on the Navy Department Appropriation Bill for 1942*, cited, pp. 585-91.

67. For more detailed data on past and prospective deliveries, cf. *Investigation into Status of Naval Defense Program*, cited, *passim*; *Army and Navy Journal*, February 8, 1941, p. 612.

68. *Investigation into Status of Naval Defense Program*, cited, pp. 259, 260, 265, 289, 291, 315, 317, 328.

69. The capacity of Pensacola, once the only station of its type, has been greatly increased. Advanced training is given at Miami.

70. *Ibid.*, *passim*. Steps are in preparation to increase the number of enlisted pilots materially. *Army and Navy Journal*, March 15, 1941, p. 746. At present about 20 per cent of Navy pilots are enlisted men. *Investigation into Status of Naval Defense Program*, cited, p. 337. Intensive courses are also given to enlisted men to train them as radio operators, mechanics, and aircraft ordnance specialists. *Ibid.*, p. 250.

to conduct a campaign with the units now available, and its composition today is the result of years of planning for just such a situation. It does not follow, however, that on mobilization nothing need be done to prepare the fleet for action. When the danger of a conflict seems imminent, fleet auxiliaries must be acquired from the merchant marine, small craft for offshore work must be made ready for service, and new personnel must be trained for war duties. Marked progress is now being made in these spheres.

Auxiliaries. For large-scale naval action the fleet requires numerous ships specially fitted to service and repair fighting craft, thus freeing them in part from dependence on fixed shore establishments, as well as certain craft for subsidiary combat functions. Among the types in use are large repair ships; tenders for destroyers, submarines and aircraft; cargo ships, store ships, oilers (tankers), ammunition ships, transports, ocean tugs, hospital ships, fleet minesweepers, minelayers, net layers and anti-aircraft vessels. Some of these auxiliaries are permanently organized in one or more fleet trains, but in time of peace it would be highly uneconomic for the Navy to maintain all the units needed by a balanced force. Consequently, after the last war, none were built for the Navy until 1938.[71] The subsidized merchant marine, however, was made subject to call by the Navy, and its ships have been constructed with their use as auxiliaries in view.

In 1940 the Navy Department took energetic action to acquire sufficient auxiliaries for war needs. The two ship expansion acts authorized the purchase or construction of 175,000 tons of such vessels, and appropriations were promptly voted to begin the program.[72] In January 1941 85 major auxiliary craft were building.[73] By March 11, 1941 the Navy had bought 48 commercial ships, largely through the Maritime Commission, including 12 high-speed "national defense tankers." The tankers alone can carry over 72 million gallons of oil at 19 knots, a speed easily enabling them to keep up with the battle fleet. At the battleship rate of consumption, it is estimated that this stock will permit the fleet to steam a total of over 800,000 nautical miles without putting in at a naval base. Many other vessels taken over are fast freighters to be converted into ammunition ships, cargo ships, and submarine and seaplane tenders.[74] Among the acquisitions, moreover, are 14 passenger vessels capable of service as transports, which will accommodate more than 28,000 officers and men.[75] And 45 overage 1,200-ton destroyers are being converted into fast transports, minelayers, minesweepers, tenders and anti-aircraft ships.[76] In all, the number of auxiliary vessels with the fleet already surpasses 175 and will continue to grow.[77]

Patrol and District Craft. Besides its major auxiliaries, the Navy needs several thousand small harbor and seagoing ships for coast defense, protection of vital coastwise shipping and other purposes.[78] Patrol boats include submarine chasers up to 165 feet in length, motor torpedo boats, minesweepers, fleet tugs and other types, while among the harbor and yard craft are small tugs, lighters, barges, small minesweepers, and boom and net layers to install and maintain harbor barriers to the entry of submarines and torpedoes. In January 1941 96 patrol craft and 166 miscellaneous harbor boats were under construction; 90 others, including 52 trawlers and dredgers, had been bought from private owners and were being converted for minesweeping.[79] Under a new $400,000,000 authorization passed during the same month, 400 more patrol, local defense, salvage and yard craft are to be built, principally in small shipyards situated on the Great Lakes and inland waterways.[80] Since many are made of wood, and all will use Diesel or gasoline engines, their construction will not interfere materially with the work on larger vessels. Most of the 280 units to be started immediately will be completed during 1941. Contracts had been awarded for 239 by March 21.

As part of the small-boat program, the Navy has been testing high-speed motor torpedo (PT) boats of the general type used successfully by the British and Germans in the English Channel. These craft are armed with 4 torpedo tubes, machine guns, and smoke-screen equipment, while slower boats, known as submarine chasers, also carry sound detectors and depth charges. By June 1941 the Navy plans to have in service 44 PT boats of two models, 70 and 81 feet long, with top speeds of 60 knots and more, to act as a combatant unit in conjunction with the fleet. It may therefore be assumed that boats have been designed which are sufficiently seaworthy not only for activity

71. *Senate Naval Affairs Committee Hearings on H.R. 8026*, cited, p. 118.

72. For detailed description of Navy plans under this legislation, cf. *House Appropriations Subcommittee Hearings on the Second Supplemental National Defense Appropriation Bill for 1941*, cited, pp. 49-53. An additional 200,000 tons of ships is now being requested. Cf. *New York Herald Tribune*, March 4, 1941. Some naval auxiliaries may be turned over to the British.

73. U.S., 77th Congress, 1st session, *Senate Report No. 5 on H.R. 1437*, January 27, 1941, p. 9.

74. Speech of Admiral Land, text in *Congressional Record*, February 13, 1941, pp. 988-90. Funds have been appropriated to purchase 12 additional large auxiliaries. For breakdown of auxiliary purchases, cf. U.S., 77th Congress, 1st session, *Hearings before the House Appropriations Subcommittee on the Fifth Supplemental National Defense Appropriation Bill for 1941* (Washington, 1941), pp. 290 ff.

75. *Ibid.*, *The New York Times*, February 21, 1941. The Army has also taken over 12 ships with a carrying capacity of 12,000.

76. U.S., 76th Congress, 3d session, *Supplemental Hearings of the House Appropriations Subcommittee on the Senate Amendments to the Navy Department Appropriation Bill for 1941* (Washington, 1940), pp. 105-06.

77. *Senate Report No. 5*, cited, p. 9.

78. For description of "mosquito fleet" types, cf. G. F. Eliot, in *New York Herald Tribune*, January 23, 1941.

79. *Senate Report No. 5*, cited, p. 9; U.S., 77th Congress, *Hearing of the House Naval Affairs Committee on H.R. 1437 Authorizing Additional Shipbuilding and Ordnance Manufacturing Facilities for the U.S. Navy (No. 2)*; January 15, 1941, p. 52. A number of laid-up World War ships have also been recommissioned.

80. Public No. 4, 77th Congress, approved January 31, 1941.

in narrow waters but, to a restricted extent, in the open sea. In fleet operations they would precede the main body, launch dashing torpedo attacks, and penetrate into shallow inlets and bays—tasks they presumably accomplished during Caribbean maneuvers in which they participated early in 1941. They can also serve as coastal patrol or convoy vessels and would be especially valuable for offshore defense of naval bases against lurking submarines.[81] Navigation along our coasts is further safeguarded by the enlarged Coast Guard, which is placed under naval orders, in war or full emergency, and by a new force of small patrol airships. Forty-eight of these have been authorized.

Enlisted personnel. As more ships join the fleet, they must be manned immediately with well-trained crews if fighting efficiency is not to be lowered. It is consequently desirable to recruit men in advance of naval expansion and to provide every combatant ship with not less than 115 per cent of the normal complement, or with as many men as can be accommodated on board, in order to make competent crews available for newly commissioned vessels.[82]

Hence enlisted strength has been raised steadily in recent years. The number of men in service increased from 110,196 on June 30, 1939 to 139,554 a year later and, including recruits under emergency authorization and reservists on active duty, to 214,710 on March 4, 1941.[83] It is believed that combatant ships are now filled to more than 100 per cent of war complement. By June 30, 1942, it is estimated that 286,000 men will be needed, with a prospective total of 532,500 when the two-ocean navy is completed in 1946 or 1947.[84] New legislation increasing the authorized enlisted strength to 300,000 is now being pushed through Congress.[85] Facilities for training recruits and the many types of enlisted specialists have been enlarged. Despite the fact that the normal period of enlistment is now six years, volunteers have been sufficiently numerous to meet personnel needs. A considerable period must pass, however, before the requisite number of petty (noncommissioned) officers can be trained for the growing fleet.[86]

Officers. Extraordinary measures are also being taken to increase the number of officers in service, which must rise from less than 11,000 when the two-ocean navy bill was passed to approximately 35,500 when all ships, planes and shore establishments contemplated are in commission. To help fill an already pressing shortage, the class of 1941 at Annapolis was graduated in February; age limits for entry were liberalized; Congress has voted an increase in the number of appointments to the Naval Academy; and its four-year curriculum has been temporarily telescoped into three.[87] Only a small proportion of the necessary increment, however, can be met by this method; for the time being, at least, the bulk of the additional officer strength must be drawn from reserve and retired officers.[88] The Navy is giving 30-day cruises and intensive 90-day instruction courses to approximately 5,000 college students or graduates, known as Reserve midshipmen, who thereupon receive reserve commissions and are assigned to active duty.[89] During the summer of 1940, moreover, the authorized number of naval R.O.T.C. students at colleges was raised from 2,400 to 7,200. Officers who have completed reserve training are ordinarily used to fill the lower ranks up to the grade of lieutenant commander, while command posts are occupied by career officers with greater professional qualifications. With almost all reserve officers on duty and new ones receiving short-term training, the Navy is close to wartime status in this respect. The number of officers on active duty was 20,098 on March 1, 1941; by mid-1942 it will reach a total of 26,120 — 12,160 Regulars, 2,013 retired officers, and 11,947 from the categories of the Naval Reserve.[90-91] Plans are already being made for the day when the emergency has passed and the number of officers must be reduced by elimination of the reserve personnel now being obtained.

Marine Corps. The attention devoted to the Marine Corps also bespeaks awareness of the imminence of possible conflict. The Corps is an arm of the Navy organized along military lines with a four-fold function: to maintain a mobile force ready for immediate use with the fleet in operations involving shore objectives; to safeguard navy yards and stations at home and in outlying possessions; to furnish detachments as part of the crew of major combatant vessels; and to provide forces for the protection of American lives and property abroad. Limited to a scheduled strength of 19,000 men on June 30, 1940, the Corps has been more than doubled in size, reaching 38,600 by December 1, 1940, or, at present, over 45,000 men including

81. *New York Herald Tribune,* November 14, 24, 1940; *The New York Times,* November 8, 1940; Lieut. R. H. Smith, "The Mosquito Stings," cited, pp. 1695-98.

82. Cf. *Annual Report to the Secretary of the Navy by the Chief of the Bureau of Navigation for the Fiscal Year 1940* (Washington, mimeographed, 1940), p. 3.

83. *Ibid.,* p. 47; U.S., 77th Congress, 1st session, *House Report 226 on H.R. 3786,* March 11, 1941.

84. *Ibid.; Army and Navy Journal,* March 8, 1941, pp. 713, 735.

85. *H.R. 3786,* 77th Congress.

86. On personnel matters, cf. *House Appropriations Subcommittee Hearings on the Fourth Supplemental National Defense Appropriation Bill for 1941,* cited, pp. 201-26; *idem, Hearings on the Navy Department Appropriation Bill for 1942,* cited, pp. 40, 59, 67 ff., 89 ff., 128, 170.

87. Public No. 2, approved January 30, 1941. For details, cf. U.S., 77th Congress, 1st session, *House Naval Affairs Committee Hearings on H.R. 2318 to Remove Certain Limitations on Appropriations for the Pay of Midshipmen* (No. 3, Washington, 1941); *Army and Navy Journal,* March 8, 1941, p. 713.

88. All of the Navy's organized reserves, comprising 27,591 officers and enlisted men of the fleet and marine corps, were ordered into active service October 5, 1940. *The New York Times,* October 6, 1940. For classification of the various types of naval reservists, cf. *loc. cit.; House Appropriations Subcommittee Hearings on Navy Department Appropriation Bill for 1942,* cited, pp. 219 ff.

89. *House Naval Affairs Committee Hearing No. 3,* cited, pp. 123-25. This program will be repeated in the fiscal year 1942.

90-91. *Annual Report of the Chief of the Bureau of Navigation, 1940,* p. 43; *House Report No. 247,* cited, p. 4; *Army and Navy Journal,* March 22, 1941, p. 807. Includes warrant officers.

mobilized reservists.[92] Since its numbers are fixed by law at 20 per cent of the Navy's authorized enlisted strength, projected enlargement of the latter to 300,000 would establish the Corps at a level of 60,000 men. An ultimate strength of 80,000 is envisaged.

Much of the value of the Marine Corps lies in its specialized training and its preparedness for instant action. To capture and guard the advanced bases necessary for fleet operations, it provides a force of all arms known as the Fleet Marine Force which, although stationed ashore, is an integral part of the fleet under the direction of the Commanders of the Pacific and Atlantic Fleets. A composite force of infantry, artillery (including anti-aircraft), aviation, tanks, signal troops, engineers and chemical troops, it participates in landing exercises with the fleet for about two months each year, on both coasts. Until February 1, 1941, the Force was organized in two brigades; as of that date they were converted into divisions of the Army's modern, triangular type, each to consist ultimately of 14,000 men and an air wing of 307 operating planes.[93] Besides these units, there are 6 Marine Defense Battalions of 750 men each, relatively immobile and heavily armed with artillery and machine guns for concentrated fire power. Their function is the defense of naval bases.[94]

A five-year program was proposed in 1936 to procure suitable landing equipment for the Marine Corps, but it was never carried out because of lack of funds. Now, however, the Navy's purchases of transports from the merchant marine will provide space for large numbers of troops and their equipment. Four overage destroyers, moreover, are being converted into high-speed transport vessels, each capable of carrying 300 to 400 men as advanced landing parties. Special power-driven landing boats with a capacity of 40 men have been delivered, while others which carry tanks and heavy items are under construction. Two hundred lightly armored, ingenious amphibian tanks useful in water and marsh and on land have been ordered further to facilitate landing operations.[95] With its rearmament proceeding at a rapid pace, the Marine Corps should soon reach a high level of preparation. Since the summer of 1940, several thousand men have been stationed at Guantanamo, Cuba, whence they can quickly be dispatched to any point in the Caribbean or northern South America.

92. General Holcomb, *House Appropriations Subcommittee Hearings on the Fourth Supplemental National Defense Appropriation Bill*, cited, pp. 325 ff.

93. Home stations are Quantico, Virginia, and San Diego, California. *Army and Navy Journal*, February 1, 1941, p. 583; *Congressional Record*, February 25, 1941, p. 1432. A large new training area is being acquired on the North Carolina coast.

94. U.S., 77th Congress, *House Report No. 115 on H.R. 3155*, February 18, 1941, pp. 2-3; A.P. dispatch, *The New York Times*, July 23, 1940.

95. *House Appropriations Subcommittee Hearings on the Second Supplemental National Defense Appropriation Bill*, cited, p. 45.

APPROACH TO MOBILIZATION

Thus it is clear that, in every branch of its activity bearing on combat functions, the Navy is in the midst of an expansion program which can be compared only with the effort made during the first World War. Shipyards are working to capacity; the production of naval airplanes is being pressed; shore establishments are being greatly enlarged; and the supply of trained man power is growing steadily. Both the material and human reserves held against potential emergency have already been very largely brought into play. The Navy has reconditioned its laid-up ships and placed them in full commission, and has also drawn heavily on the American merchant marine for its auxiliary support. As for personnel, most reservists are in active service, and officers and enlisted men are being prepared for duty by intensive wartime instruction procedures. The strategic disposition of ships, planes and bases has been altered to conform with existing political conditions. Should the call for full mobilization come tomorrow, not very much more could be done to quicken the pace of naval preparation. In this respect the Navy may be said to have attained a virtual war footing.

In contrast with the Army, in which mass training activities entail a temporary reduction in fighting efficiency while regulars train recruits,[96] the tactical value of the Navy is being maintained and enhanced through the period of augmentation. As the naval establishment grows, shortages are of course constantly becoming apparent: those in aircraft, certain types of ordnance, and officer personnel offer good illustrations. It should be remembered, however, that deficiencies in such spheres indicate not a diminution of combat strength but only a check on the speed of its growth, in an organization already at a high point of preparedness. Given adequate time, and assuming that major American units are not transferred to Britain, the balanced composition of the Navy should eventually be fully restored at a still higher level. To assess the national value of the current programs, however, it is important to examine not only the shape naval expansion takes, but the objectives and policies it is designed to implement. This will be the subject of a forthcoming *Foreign Policy Report*.

96. D. H. Popper, "The U.S. Army in Transition," *Foreign Policy Reports*, December 1, 1940.

The April 15 issue of FOREIGN POLICY REPORTS *will be*

JAPAN'S DRIVE TOWARD A "NEW STRUCTURE" *by T. A. Bisson*